

## **REMARKS**

Claims 1, 4-6, and 19-21 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (U.S. 5,846,648) in view of Matsunuma (U.S. 6,602,621). Claims 1 and 19-21 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Hikosaka (U.S. 6,620,533). Claims 1, 4, and 19-20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Ranjan et al. (U.S. 5,631,094). Applicant respectfully traverses all of these rejections because the proposed combinations fail to teach or suggest all of the limitations of independent claim 1 of the present invention. Moreover, all of the rejections appear to have clearly misread the teachings of the Chen reference.

Specifically, the Office Action (page 8, lines 10-11) asserts that “Chen discloses that the nucleation sites may be formed of any material that allows for the epitaxial growth of the recording layer (column 10, lines 6-22).” The cited text from col. 10, however, never mentions epitaxial growth, or epitaxial growth of the recording layer. The text at col. 10, lines 6-22 of Chen only describes that a “suitable seed layer” be selected to produce fine Cr grains. Nothing in the text describes the composition of individual metallic islands (or nucleation sites) within the seed layer, or how such compositions will affect the intermediate layer above Chen’s seed layer, or the magnetic recording layer above Chen’s intermediate layer. Accordingly, the asserted basis for this portion of the rejection has no support from the cited reference, and therefore the rejection is deficient for at least these reasons.

Applicant submits that, because the Examiner’s “epitaxial growth” statement is nearly identical to one from the previous Office Action, perhaps the Examiner meant to refer

to lines 10-22 of col. 11 of Chen instead of lines 6-22 of col. 10. Epitaxial growth of the magnetic recording layer is discussed in this portion of col. 11, however, as explained on page 8 of Amendment G (filed September 16, 2006), this portion of Chen's text is also inapplicable to the present claims. The previously cited text from col. 11 describes only the material composition of Chen's *intermediate layer* (element 24, see Fig. 2) and not the metallic islands on the substrate, as clearly recited in claim 1.

Again, the Examiner is reminded that he has determined that Chen's individual grains 74 in the *seed layer* 22 are analogous to the metallic islands of the present invention, and not the grains 76 that are formed in the *intermediate layer* 24 above the grains 74. The Examiner has never challenged any of the meritorious arguments presented by Applicant on this issue. Accordingly, whether the Examiner meant to refer to the text at col. 10 or col. 11 of Chen, neither text portion supports the remarks in the rejection regarding the material of the metallic islands in relation to the growth of the recording layer. Col. 10 describes no relationship between Chen's grains 74 and the recording layer, and col. 11 discusses only the intermediate layer above the grains 74, and not the grains 74 themselves.

Applicant submits that the Examiner may better understand the present invention with respect to the Chen reference when considering the actual structural configuration of the individual grains of the present invention separate from their individual magnetic characteristics. Applicant further submits that Chen would not be reasonably interpreted by one of ordinary skill in the art to be able to implement – without the assistance of the present Application – the present invention's unique combination of configuration and

characteristics of the claimed nucleation sites. As discussed above, it is important not to confuse the features and elements of one layer with those from another.

As asserted on page 3 of the outstanding Office Action (second paragraph), the Examiner insists that the spatial separation of the individual islands of the present invention is obvious from Chen based on issues of the magnetic characteristics only. However, even if true (which Applicant does not concede), these assertions fail to take into account the effect on such magnetic characteristics by a change in structural configuration. Even if the Examiner was correct that the “spacing determines [the] properties,” the rejection does not establish that the claimed spacing of the present invention would achieve the same results based only on Chen’s teachings. Applicant submits that the present invention could not be obviously derived from Chen in such a manner. The rejection states that the present claims would merely be the “optimum value of a results effective variable,” but Chen (as well as all of the other cited references of record) appear to clearly teach that bringing the seed layer grains together in a continuous layer is optimum, thereby contradicting the rejection.

The additional citations to Ranjan and the other secondary references fail to resolve the clear misinterpretations of the Chen reference. The cited text from Ranjan (col. 6, lines 10-28), for example, describes only an entire sputtered nucleation layer, and never teaches or suggests anything regarding the composition of individual metallic islands that may be discretely located within such a nucleation layer. For this reason, Ranjan is not sufficiently analogous to the present invention.

The present invention requires individual metallic islands formed on the surface of a substrate, individual crystal grains in a seed layer that each correspond to one of these metallic islands, and individual magnetic crystal grains in a magnetic crystal layer having each grown from a corresponding crystal grain. Ranjan fails to teach or suggest anything regarding individual grains or metallic islands, or anything else regarding this three-tiered approach. Ranjan describes only a nucleation layer 16 and a magnetic alloy layer 18. The proposed combination of Ranjan with Chen fails to explain how the two-layer system of Ranjan can easily be incorporated into the distinct three-layer system of Chen. Accordingly, the proposed combination is deficient for at least these reasons.

The reliance on Ranjan is further misplaced because the cited text from Ranjan is not analogous to the metallic islands of the present invention for which it was cited. Claim 1 of the present invention clearly recites that the metallic islands are formed on the surface of a substrate. Fig. 1 of Ranjan, on the other hand, clearly illustrates that the entire nucleation layer 16 is not formed on the surface of the substrate, but instead on the surface of the *underlayer 14* that is interposed between the nucleation layer and the substrate 12. Ranjan similarly fails to teach that the underlayer 14 includes any discrete metallic islands either, and therefore the reference is further inapplicable to the present invention.

Therefore, none of Chen, Ranjan, or the other cited references, whether taken alone or in combination, teach or suggest metallic islands formed on the surface of a substrate where the islands are physically spaced from each other, and where the islands include at least one metallic element and molecules of an oxide or nitride compound that

does not include the metallic element. The cited references teach different material structures that are not obvious to combine, and several of the cited portions from both references are not even relevant to the particular features of the present invention for which they were cited.

Again, independent claim 1 of the present invention clearly distinguishes between the metallic islands, the seed crystal layer grown from the metallic islands, and the magnetic crystal layer grown from the seed crystal layer. The rejection, however, fails to consistently distinguish between the three particular layers in Chen, and no teaching or suggestion has been cited from either reference to support the implication that the individual layers are interchangeable. Accordingly, the rejection based on a combination of Chen with Ranjan should be withdrawn.

New claims 22 and 23 have been added herein to each depend from independent claim 1, and to recite yet another combination of features of the present invention. Both of these claims should therefore be in condition for allowance for at least the reasons discussed above regarding claim 1. Entry, consideration on the merits, and allowance of new claims 22 and 23 are therefore respectfully requested.

For all of the foregoing reasons, Applicant submits that this Application, including claims 1, 4-6, and 19-23, is in condition for allowance, which is again respectfully requested. The Examiner is also again invited to contact the undersigned attorney if a further interview would expedite prosecution.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read "Josh C. Snider", with a stylized flourish at the end.

Josh C. Snider

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